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hemisphere, the phenomena are found to present the same obvious and decided features of a duplicate system as those of the northern. Particular attention is given to those lines traversed by the ship's course where the needle attains its maximum declination, whether easterly or westerly, as affording valuable data for the estimation of secular variations. The results obtained by the present expedition confirm the conclusion deducible from those of previous navigators; namely, that the spaces in the Southern Pacific, distinguished by certain magnetic characters, undergo a movement of translation, of which the general direction is from east to west; a direction which is the opposite to that in which a similar change takes place in the corresponding regions of the northern hemisphere; namely, in the Siberian quarter, where the secular movement is from west to east.

April 25, 1844.

The MARQUIS OF NORTHAMPTON, President, in the Chair.

1. "On the production of Ozone by Chemical Means." By C. F. Shoenbein, Professor of Chemistry at Basle, in a second letter to Michael Faraday, Esq., D.C.L., F.R.S. Communicated by Dr. Faraday.

The author adduces further evidence in support of the opinions he advanced in his former communication relative to the identity of the odoriferous principles which are disengaged during electric discharges in common air, during the electrolysis of water, and during the slow action of phosphorus upon atmospheric air. This principle, termed *Ozone*, he regards as being a simple body, and a constituent of azote, which he believes to be a compound of hydrogen and ozone; and he explains the disengagement of this latter element, which he considers as analogous in its chemical character to chlorine, by the partial decomposition of azote, in consequence of its hydrogen combining with oxygen, in the several processes above-mentioned during which ozone makes its appearance.

2. "On the existence of Phosphoric Acid in Rocks of igneous origin." By George Fownes, Esq., Ph. D., Chemical Lecturer in the Middlesex Hospital Medical School. Communicated by Thomas Graham, Esq., F.R.S.

The author has, by careful analysis, ascertained the presence of phosphoric acid in various rocks of igneous origin. Those which he examined were principally the following; namely, 1. The fine white porcelain clay of Dartmoor, resulting from the disintegration of the felspar of the granite of that district. 2. Dark grey vesicular lava from the Rhine, used at Cologne as a building-stone. 3. White trachyte from the Drachenfels, near Bonn. 4. Dark red, spongy, scoriaceous lava from Vesuvius. 5. Compact, dark green basalt, or toadstone from Cavedale, Derbyshire. 6. Dark blackish-green basalt from the neighbourhood of Dudley, termed

Rowley-ragg. 7. Ancient porphyritic lava, containing numerous crystals of hornblende, from Vesuvius. 8. A specimen of tufa, or volcanic mud, also from Vesuvius.

The author infers from his analysis that phosphoric acid is a very usual component part of volcanic rocks, and is a principal source of the remarkable fertility possessed by soils derived from their disintegration.

May 2, 1844.

The MARQUIS OF NORTHAMPTON, President, in the Chair.

1. "Ranges of the Barometer and Sympiesometer on board H.M.S. 'Alfred,' in the River Plate, between the 1st of July and the 31st of December, 1843." Communicated by Captain Beaufort, R.N., F.R.S.

This paper is a register of the results of daily observations of the heights of the barometer, sympiesometer and thermometer, the direction of the wind, and state of the weather during the above period.

2. "Remarks on the amalgamation of Silver Ores in Mexico; with an account of some new combinations of Copper, Oxygen and Chlorine." By John Christian Bowring, Esq. Communicated by S. Hunter Christie, Esq., Sec. R.S.

The process employed in Mexico for amalgamating ores containing sulphurets of silver, and which consists in adding to them a solution of bichloride of copper with chloride of sodium, is explained by Sonneschmidt, Humboldt, and Boussingault, on the supposition that a chloride of silver is formed at the same time that the sulphur combines with the copper. The author calls in question the truth of this theory, and proposes certain modifications of the process by the employment of a combination of deutoxide of copper with the bichloride, until an oxy-chloride is formed, and then adding finely precipitated copper, by which a salt of a brick-red colour is obtained, insoluble in water, and at a temperature of 200° Fahr. speedily reducing sulphuret of silver to the metallic state.

3. "Experimental evidence in support of the secretion of Carbon by animals." By Robert Rigg, Esq., F.R.S.

The author finds that the mean of the results of different experimentalists as to the quantity of carbon excreted by respiration from adults, during twenty-four hours, is 5963 grains; whereas the weight of the carbon contained in the whole of the food, both solid and liquid, received into the body during the same period, as ascertained by the analysis of each article of diet, made by the author, falls very short of that quantity; varying in different cases from 3002 to 4800 grains. The same inference is drawn from experiments made on a mouse, weighing 181 grains, confined in a wire trap for twenty-eight days; during which time it consumed food containing 544.5 grains of carbon, and gave out, in the respired air,